

Amendments to Claims

1. (amended) An apparatus for the use of drilling or producing from a well bore, the apparatus comprising:

a downhole member having a non-rotating part and having a rotating part freely rotating within said non-rotating part and capable of being attached to a tubular,

means for rotating the tubular,

control means for controlling the rotation of said tubular in order to transmit information along said tubular,

~~and~~ means for monitoring the rotation of said tubular with respect to said non-rotating part, and

means for decoding said information transmitted along said tubular said means configured to determine such that a magnitude of a parameter can be determined from the rotation of said tubular, such that each complete revolution of the tubular is equal to an analogue or binary data point.

2. (original) The apparatus of claim 1, wherein the control means is configured to control the rotational velocity or frequency of the tubular.

3. (original) The apparatus of claim 1, wherein the control means is configured to stop the rotation of the tubular for a predetermined time.

4. (original) The apparatus of claim 3, wherein the monitoring means is configured to measure the time of non-rotation of the tubular.

5. (original) The apparatus of claim 3, wherein the monitoring means is configured to measure the time over which the tubular is continuously rotating.

6. (original) The apparatus of claim 5, wherein the monitoring means is configured to measure the time over which the tubular is continuously rotating at a particular rotational speed.

7. (original) The apparatus of claim 1, wherein the monitoring means is configured to count the number of rotations of the tubular.

8. (original) The apparatus of claim 1, wherein the monitoring means comprises a magnet.

9. (original) The apparatus of claim 1, wherein the monitoring means comprises at least one of a radioactive or sonic source.

10. (amended) The apparatus of claim 1, wherein the monitoring means comprises a ~~gravitational accelerometer configured to detect alternating variations in the gravitational field due to rotation of the tubular~~ magnet and said decoding means is configured to detect a maxima in the magnetic field of the magnet so that said analogue or binary data point corresponds to a detected maxima.

11. (amended) The apparatus of claim 1, wherein said ~~drilling member~~ rotating part comprises:

a hollow rotatable mandrel having a concentric longitudinal bore;

an inner sleeve rotatably coupled about said mandrel, said inner sleeve having an eccentric longitudinal bore of sufficient diameter to allow free relative motion between said mandrel and said inner sleeve;

and wherein said non-rotating part comprises:

an outer housing having an outer surface, said outer housing is rotatably coupled around said inner eccentric sleeve, said outer housing having an eccentric longitudinal bore forming a weighted side adapted to automatically seek the low side of the wellbore and having sufficient diameter to allow free relative motion between said inner sleeve; ~~and~~

a plurality of stabilizer shoes longitudinally attached to or formed integrally with said outer surface of said outer housing;

drive means for selectively rotating said inner eccentric sleeve with respect to said outer housing and

logic means for controlling said drive means based on the information transmitted along said drill string.

12. (amended) An apparatus for transmitting information in a timely manner from the face of the Earth to a downhole assembly, whereby the rotation of the drill string is used as an output device, conveying information to components which are located in the wellbore, the apparatus comprising:

a downhole member having a non-rotating sub-assembly and having a rotating sub-assembly freely rotating within said non-rotating sub-assembly and capable of being attached to the drill string,

a device which is closely coupled to either ~~the drill string~~ said rotating sub-assembly, or a said non-rotating sub assembly, which emits a signal or influences its environment such that the rotation of the ~~drill string~~ drill string is used to activate a sensor means which may be integrated into either the drill string, or a non-rotating sub-assembly with a timing device such that the sensor outputs derived from the rotation of the ~~drill string~~ drill string system may be measured against a time-based system such that meaningful encoding may be accomplished, which may be coupled to an actuation or switching mechanism or mechanisms.

13. (original) The apparatus of claim 12, wherein the emitter or device influencing the environment comprises a magnet or a magnetic device.

14. (original) The apparatus of claim 12, wherein the emitter or device influencing the environment comprises a mechanical switch which is activated by the rotation of the drill string.

15. (original) The apparatus of claim 12, wherein the emitter or device influencing the environment comprises at least one of a sonic or radioactive source.

16. (amended) A method of transmitting information along a tubular to a downhole member located within a well bore, the method comprising the steps of:

rotatably driving said tubular, wherein the rotation of said tubular is controlled accordance with information which is to be transmitted along said tubular;

monitoring the rotation of said tubular;

detecting complete revolutions of said tubular; and

analysing the monitored rotation of said tubular such that a magnitude of a parameter can be determined from the rotation of said tubular.

17. The method of claim 16, wherein the step of monitoring the rotation of said tubular comprises the step of monitoring the rotational velocity of the tubular.

18. The method of claim 16, wherein the step of monitoring the rotation of the tubular comprises the step of timing a period of non-rotation of the tubular.

19. The method of claim 16, wherein the step of driving the tubular comprises the step stopping the rotation of the tubular for a pre-determined time determined by the information which is to be transmitted along the tubular.

20. The method of claim 16, wherein the step of monitoring the rotation of the tubular comprises the step of measuring the time over which the tubular is continuously rotating at a particular frequency.

Request for Reconsideration

Reconsideration of the rejection of claims 1-6, 10, 12 and 16-20 under 35 USC 102(b) is respectfully requested and claim 7 under 35 USC 103(a). Reconsideration of the objection to claims 8, 9, 11 and 13-15 is also respectfully requested.

Claim 1 has been amended to add limiting language stating that the downhole member has essentially two parts - a rotating part and a non-rotating part: “a downhole member having a non-rotating part and having a rotating part freely rotating within said non-rotating part and capable of being attached to a tubular.” Additionally language has been added to claim relative rotation between the two parts: “means for monitoring the rotation of said tubular with respect to said non-rotating part” Finally language has been added to state that complete rotations are measured - unlike Engelder which measures partial rotations - in order to transmit information to the tool; “such that each complete revolution of the tubular is equal to an analogue or binary data point.” The claim has also been amended to more clearly state how information is transmitted and determined in the downhole device: “means for decoding said information transmitted along said tubular said means configured to determine a magnitude of a parameter from the rotation of said tubular.”

Support for these amendments may be found at paragraphs 2 and 3 on page 4 of the original specification, from the original claim 1 itself, and from the drawings. The amendments are no new material.

Claims 2-6 depend from claim 1, which is now believed to be acceptable to the Examiner. Claim 7 also depends from claim 1 and counts complete revolutions unlike Engelder which may count partial revolutions. (see figure 3). Thus with the limitations of claim 1, it is believed that claim 7 will be acceptable to the Examiner because claim 7 is now distinguished from Engelder.

Claims 8 and 9 were objected to by the Examiner because they were dependent on a rejected base claim. It is believed that the rejected base claim is acceptable to the Examiner thereby making claims 8 and 9 acceptable.

Claim 10 has been amended to show that the rotating magnetic produces a maxima which is detected by the sensor: “a magnet and said decoding means is configured to detect a maxima in the magnetic field of the magnet so that said analogue or binary data point corresponds to a detected maxima.” Furthermore, claim 10 depends from amended 1 that contains language

stating that the downhole member essentially has two parts (see above) and therefore it is believed that claim 10 is acceptable to the Examiner. Support for this amendment may be found in the figures and specification beginning at page 9.

Claim 11 has been amended to clearly point out what assemblies and components form the rotating and non-rotating parts of the downhole apparatus. Claim 11 was objected to by the Examiner because it was dependent on a rejected base claim. It is believed that the rejected base claim is acceptable to the Examiner thereby making claim 11 acceptable.

Claim 12 was rejected by the Examiner because it essentially determined rotation from the tubular (like Engelder) and did not distinguish itself from Engelder. This claim has been amended by adding language that clearly states that two components are used to determine rotation: “a downhole member having a non-rotating sub-assembly and having a rotating sub-assembly freely rotating within said non-rotating sub-assembly and capable of being attached to the drill string.” The language in the claim has been corrected to show that the sensor may be mounted in the rotating part or in the non-rotating part. Also “drillstring” has been amended to - - drill string - - for consistency. Support for the amendment may be found at paragraphs 2 and 3 on page 4 of the specification.

Claims 13-15 were objected to by the Examiner because they were dependent on a rejected base claim. It is believed that the rejected base claim is acceptable to the Examiner thereby making claims 13-15 acceptable.

Claim 16 was rejected by the Examiner in light of Engelder. Claim 16 has been amended by adding the step “detecting complete revolutions of said tubular” which is believed to distinguish the method from Engelder. Support for this amendment may be found at paragraph 3 on page 4 of the specification.

Claims 17-20 depend from claim 16 which are now believed to be acceptable to the Examiner.